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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/803,320 | 03/09/2001 | Baruch Pletner | ACX-128CP | 8693 |

21323 7590 09/04/2003

TESTA, HURWITZ & THIBEAULT, LLP
HIGH STREET TOWER
125 HIGH STREET
BOSTON, MA 02110

EXAMINER

HARRINGTON, ALICIA M

| | |
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| ART UNIT | PAPER NUMBER |
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2873

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

(u)

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|------------------------------|-----------------|----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/803,320 | PLETNER ET AL. | |
| Examiner | Art Unit | | |
| Alicia M Harrington | 2873 | | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 April 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-5 and 8-11 is/are rejected.
- 7) Claim(s) 12 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on 17 April 2002 is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|--|---|
| <ol style="list-style-type: none"> 1)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3)<input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>10</u>. | <ol style="list-style-type: none"> 4)<input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s) <u>12</u>. 5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6)<input type="checkbox"/> Other: _____ |
|--|---|

Terminal Disclaimer

1. The Terminal Disclaimer filed on 8/6/03 was improper for the following reason:

The person who signed the terminal disclaimer is not recognized as an officer of the assignee, and he/she has not been established as being authorized to act on behalf of the assignee. See MPEP § 324.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-5, 8 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 and 7 respectively of Lubin et al. (U.S. Patent No. 6,563,128) in view of Spangler et al. (US 2002/0099475).

Regarding claim 1, Lubin et al (US '128) discloses a base stabilization system with motion control comprising a ground structure with a base (see claim 1 parts a and b) where three actuators are attached to the base for controlling vertical motion (see part d). The instant application ('320) also claims a wafer stage base (line 3 of claim 1 of '320) where two or more actuators control the motion (line 4 of claim 1 of '302) and at least two sensors for detecting displacement of the base (see lines 5-6 of claim 1 f '320) and producing control signals in response to the displacement. Lubin ('128) further discloses a plurality of vertical position sensor for monitoring the vertical positions of the base structure relative to the ground structure (see section E) where a multi-input, multi-output feedback control system comprising a computer processor programmed with a feedback control algorithm for controlling each the sensor and actuators (see section G). The instant application also discloses a circuit comprises a computer programmed multi-input, multi-output control technique where upon detection of the displacement by the sensors, the control technique activates the actuators to stabilize the base to minimize vibration (see lines 9-11 and 13-15). However, Lubin fails to specifically disclose the control techniques such as linear quadratic Guasian, H-infinity and mu-synthesis.

Spangler et al teaches a controller for controlling motion using a H-infinity or mu-synthesis or LQG 9(see section 25). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify, Lubin, as taught by Spangle, to implement motion control using either method, since these are well known and ensure accuracy.

Regarding claim 2 of the instant application, Lubin further discloses in claim 7, the actuators comprise voice coil actuators.

Regarding claim 3 of the instant application, Lubin further discloses in line 16, the sensors are accelerometers.

Regarding claim 4 of the instant application, Lubin fails to specifically disclose a digital signal processor. Spangler et al teaches a digital signal controller for controlling motion using a H-infinity or mu-synthesis or LQG 9(see section 35).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify, Lubin, as taught by Spangle, to increase the rate of signal processing and improve the utility of the system by allowing offsite communication as well as on-site control.

Regarding claim 5, of the instant application, Lubin fails to specifically disclose a digital process, A/D converter and D/A converter. Spangler et al teaches a digital signal controller for controlling motion using a H-infinity or mu-synthesis or LQG

9(see section 35). The sensor and actuators are analog. Thus, the circuit inherently has an A/D converter so that the digital processor can interpret the signals. Thus, the circuit also has a D/A converter since the controller outputs a control signal to the actuators. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify, Lubin, as taught by Spangle, to increase the rate of signal processing and improve the utility of the system by allowing offsite communication as well as on-site control.

Regarding claim 8 of the instant application, Lubin discloses the controller controls the wafer based on the actuators and sensors (see section G of claim 1).

4. Claims 9-11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 and 7 respectively of Lubin et al (U.S. Patent No. 6,563,128) in view of Spangler et al. (US 2002/0099475).

Regarding claim 1, Lubin et al (US 128) discloses a base stabilization system with motion control comprising a ground structure with a base (see claim 1 part a and b) where three actuators are attached to the base for controlling vertical motion (see part d). The instant application ('320) also claims a wafer stage base (line 3 of claim 1 of '320) where two or more actuators control the motion (line 4 of claim 1 of '320) and at least two sensors for detecting displacement of the base (see lines

5-6 of claim 1 f '320) and producing control signals in response to the displacement. Lubin further discloses a plurality of vertical position sensor for monitoring the vertical positions of the base structure relative to the ground structure (see section E) where a multi-input, multi-output feedback control system comprising a computer processor programmed with a feedback control algorithm for controlling each the sensor and actuators (see section G). The instant application also discloses a circuit comprises a computer programmed multi-input, multi-output control technique where upon detection of the displacement by the sensors, the control technique activates the actuators to stabilize the base to minimize vibration (see lines 9-11 and 13-15). However, Lubin fails to specifically disclose the control techniques such as linear quadratic Guasian, H-infinity and mu-synthesis and signal conditioning.

Spangler et al teaches a controller for controlling motion using a H-infinity or mu-synthesis or LQG 9(see section 25) and further discloses signal conditioning (606;section 50). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify, Lubin, as taught by Spangle, to implement motion control using either method with signal conditioning, since these are well known and ensure accuracy.

Regarding claim 10 of the instant application, Lubin further discloses in claim 7, the actuators comprise voice coil actuators.

Regarding claim 11 of the instant application, Lubin further discloses in line 16, the sensors are accelerometers.

Conclusion

5. Claims 1-5,8-11 would be allowable if they overcome the non-statutory double patenting rejection(s), set forth in this Office action.

Claims 12 are objected to as depending from rejected base claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 12, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which include the wafer stage is commanded to track within 0.19 seconds.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M Harrington whose telephone number

Art Unit: 2873

is 703 308 9295. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 703 308 4883. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308 7724 for regular communications and 703 308 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

Alicia M Harrington
Examiner
Art Unit 2873

AMH

August 25, 2003

Georgia Epps
Supervisory Patent Examiner
Technology Center 2800